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Environmental Affairs Department

May 4, 1993

Arthur H. Fieser, Ph.D., P.E.
Chief, Engineering Section
Allegheny County Bureau of Air Pollution Control
301 Thirty-ninth Street
Pittsburgh, PA 15201-1891

Dear Dr. Fieser:

Re: *Requirements of Title 25 Pennsylvania Code*
NOx Continuous Emissions Monitoring

This is in response to your letter dated March 29, 1993 advising that Continuous Emission Monitors (CEMs) may be required for the following six U. S. Steel sources in Allegheny County:

- Clairton Boilers No. 1 and 2
- Edgar Thomson Riley Boilers No. 1, 2, and 3
- Clairton Battery "B"

U. S. Steel recognizes the importance of establishing a reliable NOx database and supports PaDER and the BAPC in this effort. However, U. S. Steel believes reliable NOx information can be provided to the BAPC by using more cost-effective surrogate monitoring parameters.

U. S. Steel requests that the BAPC approve an alternative emission monitoring and reporting system which will provide accurate monitoring data. The justification for exemption from CEMs and the proposed alternative are presented below.

EXEMPTION FROM CEMS

Exemption of Coke Oven Battery

The NOx CEMs requirement applies to "... all combustion units with a rated heat input of 250 million BTUs per hour (MMBTU/HR) or greater...". We believe that this requirement does not apply to Clairton Battery "B" because a coke oven battery is a process unit, rather than

a combustion unit. This is supported by the Allegheny County Health Department's Article XX definitions which differentiate between a combustion unit or combustion equipment and a process.

Article XX defines a process as, "...any operation or series of operations, including all equipment, devices, or other contrivances and all flues and appurtenances thereto, for making any physical or chemical change for the purpose of transforming materials into any product of manufacture, and which may result in the emission of air contaminants ...". The definition specifically excludes "... equipment defined as fuel-burning or combustion equipment ...". Further, process equipment means "...any machine, device, system, or other contrivance used in any process, ... but not including equipment defined as fuel-burning or combustion equipment or incinerators".

The Allegheny County BAPC installation and operating permits further distinguish between the two categories. The permits for U. S. Steel's boilers are titled by the BAPC as "PERMIT - FUEL BURNING OR CONSTRUCTION", while the permits for coke oven batteries are titled, "PERMIT - PROCESS". U. S. Steel believes that the NOx CEMs rule does not apply to Clairton's "B" Battery, since a battery is clearly a process in which a coal blend is distilled to produce metallurgical coke, rather than a combustion unit.

Economically Burdensome

U.S. Steel is the only industry in Allegheny County required to install NOx CEMs. The significant cost of installing and operating the CEMs would place U. S. Steel at a competitive disadvantage as compared to other related industries in Allegheny County. Consultations with manufacturers' representatives indicate that installation of NOx CEMs at the six sources would cost more than $0.5 million, and operation would cost more than $0.25 million annually, based on conservative estimates. Costs will likely be greater due to retrofitting the system into existing facilities. U. S. Steel is confident that the proposed alternative will provide the BAPC and PADER with accurate NOx data in a much more cost-effective manner.

PROPOSED ALTERNATIVE

U. S. Steel proposes to satisfy the Title 25 NOx monitoring requirement through monitoring of fuel consumption and use of NOx emission factors derived from stack tests.

Consumption of each type of fuel is currently recorded at Clairton Works and the Edgar Thomson Plant as part of the sulfur-dioxide monitoring program. Recent fuel- and source-specific NOx emission factors have been derived based on stack tests conducted at both facilities during March 1993. The NOx emission factors for the relevant sources are contained in Table 1.

Emissions calculated from actual fuel use data and emission factors derived from actual stack tests will provide a high level of accuracy. Additionally, NOx emission factors will be verified with annual stack emission tests, and the emission factors will be adjusted as necessary.

Fuel use will continue to be recorded daily. Recordkeeping and reporting will be performed in accordance with the BAPC's requirements.

We appreciate your consideration of this request. Please call me (433-5918) if you require further information.

Very truly yours,

Lorraine Guevara

Lorraine E. Guevara
Senior Environmental Engineer

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Attachment

TABLE 1

NOx EMISSION FACTORS

Facility/Source	Fuel	NOx Emission Factor
EDGAR THOMSON		
Boilers 1 - 3	Blast Furnace Gas	5.0 lb/MMCF
	Coke Oven Gas	31.0 lb/MMCF
	Natural Gas	63.0 lb/MMCF
CLAIRTON		
Boiler 1	Coke Oven Gas	219.0 lb/MMCF
	Natural Gas	202.0 lb/MMCF
Boiler 2	Coke Oven Gas	211.0 lb/MMCF
	Natural Gas	202.0 lb/MMCF

Source: Tests conducted March 1993 by BCM Engineers, Inc., using EPA test method 7E.

Source: Coke oven gas factors determined by tests conducted March 1993 by BCM Engineers, Inc., using EPA test method 7E. Natural gas emission factors obtained from a compilation of NOx emission factors for various steel industry sources prepared by the Illinois Environmental Protection Agency.